

## **REMARKS**

### ***Claim Rejections - 35 USC § 103***

Claims 1-9,11-16 and 18-22 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Choi et al (KR 2001015511; 2/26/01) (“Choi”). The Examiner acknowledged that Choi does not teach the required element that the bacteria ferment must be sprayed onto to fertilizer granular. The Examiner also acknowledged that Choi fails to teach the claimed ferment application rate to fertilizer, cool down temperature, concentration of bacteria and concentration step. However, the Examiner contended that combining bacteria with a fertilizer is a mere result of simple mixing and that a skilled artisan “would have been motivated to do this simply because it is well within the skill of an artisan in the field to optimize parameters of an invention such as ferment application rate to fertilizer, cool down temperature and concentration.” The Examiner continued that “one would have been motivated to do this in order to develop a composition that would have been most effective at controlling as well as promoting the healthy growth of plants.”

Applicants respectfully disagree and submit that the rejection should be withdrawn for the following reasons.

First, in addition to not teaching how the bacteria are to be mixed with the fertilizer, Choi also does not teach that the ferment must be obtained from a fermentation stopped before bacteria get into a dormant stage and that the ferment is being used at a rate of at most 3 liters of ferment per ton of fertilizer.

Therefore, Choi fails to teach several of the critical elements of the invention.

Moreover, contrary to the Examiner’s allegation, a skilled artisan would not have expected a simple mixing of ingredients based on Choi to result in a product of superior performance as discussed in more detail, *infra*.

The Declaration by M. Alexandre Blais, which was submitted on March 6, 2008, sets forth that the applicants discovered and the present application teaches, and claims, a method of producing a fertilizer with specific and unexpected advantages over the fertilizers of prior art. Namely, the claimed method comprises the step of mixing a granular fertilizer with a ferment comprising **active bacteria**. To obtain active bacteria they must be obtained from a fermentation

reaction that is **stopped before bacteria get into a dormant stage** (stationary stage seen in the growth curve attached herewith as Exhibit A). The specific requirement of bacteria being harvested prior to entering dormant stage provides a distinct advantage because it will prevent the bacteria from having a lag time upon re-hydration. In order to obtain such active, no-lag time bacterial composition, ferments also must be blocked by cold or other means so as to retain their full activity at the top of the growth chart (see e.g., [0045] in the specification). These specific method steps therefore confer a distinct and unexpected advantage to the methodology described and claimed in the present application, since **no lag time** is observed upon application of the fertilizer.

Therefore, the allegation that the claimed fertilizer is a result of simple mixing ingredients and the end product provides an expected result is not based on the facts already previously brought to the attention of the Examiner. The inventors have discovered a new way of making a fertilizer with bacteria that are instantly active which is not described in Choi. Moreover, the elements that are not taught by Choi are not mere optimization steps, because a skilled artisan would not have expected a bacteria to be instantly activated if one merely mixed bacteria at any growth phase.

Further, the fertilizer produced by the method described and claimed in the present application is used at a rate of at most 3 liters of ferment per ton of fertilizer. Spraying the fertilizer at a higher rate will cause the fertilizer to partly solubilize, liberating nitrogen concentrated at the surface of the fertilizer, in the vicinity of the bacteria, which is toxic to the bacteria in such concentrated micro-environment. Therefore, Applicants discovered that the rate of application is a critical parameter to make the invention work as intended. If the fertilizer of the present invention is used at a rate of more than 3 liters of ferment per tone of fertilizer, the fertilizer agglomerates. Dehydration of the fertilizer disclosed in the present application allows not only to prevent agglomeration at a lower volume of use but also to prevent cellular damage caused to the bacteria by nitrogen solubilized from the hydrated fertilizer.

Thus, the inventors have discovered a specific way of maintaining bacteria on fertilizer that not only allows instant activation of the bacteria upon rehydration but also allows bacteria to survive during storage and reactivation. Accordingly, the parameter combination of the invention is not a result of mere optimization but a result of inventive mind that resulted in

significant and surprising improvement over previously described methods of making fertilizers such as those described by Choi.

Accordingly, Applicants respectfully submit that the rejection of claims 1-9,11-16 and 18-22 under 35 U.S.C. 103(a) as allegedly being unpatentable over Choi is improper and should be withdrawn.

Claims 1-9,11,14-16 and 18-22 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Mehta (USPN 6228806; 5/8/01) (“Mehta”). Again, the Examiner acknowledged that Mehta does not teach the claimed arrangement of fertilizer and bacteria, wherein the bacteria ferment is sprayed onto the granular fertilizer. The reasons for making the assertion of obviousness despite the lack of teaching all the elements of the invention are the same as discussed in the rejection over Choi.

Applicants respectfully disagree and submit that the rejection should be withdrawn for the following reasons.

Like Choi, also Mehta fails to teach the requirements that the ferment must be obtained from a fermentation stopped before bacteria get into a dormant stage and that the ferment is being used at a rate of at most 3 liters of ferment per ton of fertilizer.

As described, *supra*, these elements provide a distinct advantage to the method of making fertilizer as claimed, namely, they allow the bacteria on the fertilizer to be instantly active upon rehydration, and they allow bacteria to avoid overt toxicity from nitrogen released from the rehydrated fertilizer also resulting in more potent activity of the bacteria.

Accordingly, and for the reasons already discussed in the rebuttal of rejection over Choi, Applicants respectfully submit that the rejection of claims 1-9,11-16 and 18-22 under 35 U.S.C. 103(a) as allegedly being unpatentable over Choi is improper and should be withdrawn.

Applicants further respectfully submit that all the art that the Examiner has cited, appear to lack teaching of critical elements that are necessary for the composition of the present invention to work and provide the specific advantages over the prior art fertilizers as discussed. Applicant have already submitted arguments and evidence to overcome similarly defective prior

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art references presented during the prosecution, such as Burnahm et al. (U.S. Patent Nos. 6,841,515 and 5,853,450) and Kimura (U.S. Patent No. 5,093,262).

In view of the above, Applicants respectfully submit that all the claims are in condition for allowance. Early and favorable consideration is sincerely solicited.

Applicants believe no fees are currently due with the response. However, in the event that additional fees are due, the Commissioner is hereby is authorized to charge Nixon Peabody Deposit Account No. 50-0850. Any overpayments should also be deposited to said account.

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Respectfully submitted,

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